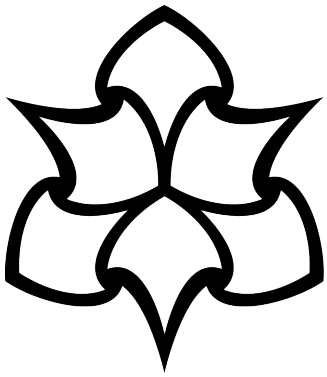

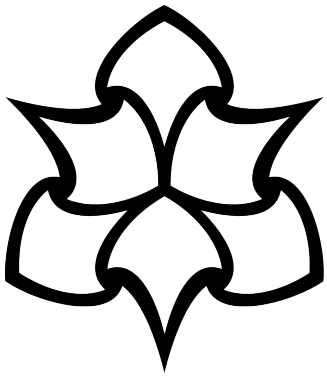

Secondary distribution of injecting equipment obtained from needle and syringe programmes by people injecting image and performance enhancing drugs: England & Wales, 2012-15.

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Keywords: Secondary distribution, Image and performance enhancing drugs, Needle and syringe programmes, Harm reduction, people who inject drugs

Abstract

Background

People who inject image & performance enhancing drugs (IPEDs) are often the largest group using needle and syringe programmes (NSPs) in the UK. NSP providers report these clients repeatedly collecting large amounts of equipment for others. The extent of secondary distribution of injecting equipment is unknown.

Methods

Data from national surveillance of people injecting IPEDs was used. Participants completed a questionnaire and provided a dried-blood spot sample. Data from two biennial surveys was combined; repeat participants were excluded. Self-reported data was used to explore the extent of secondary distribution.

Results

Of the participants 87% (467) reported NSP use: median age 31 years, 98% male. A third (34%, 157) reported collecting equipment for others. Of those collecting for others, 154 reported how many people they had collected for: 55% had collected for one person, 27% for 2-9 people, 5% for 10-19 and 13% for 20 or more (no difference by psychoactive drug use). Those vaccinated for hepatitis B were more likely (22% [15/68] vs 6% [5/86], p=0.003) and those reporting redness/swelling at an injection site were less likely to collect equipment for at least 20 others (8% [8/106] vs 25% [12/48], p=0.003). Overall, 154 people collected equipment for 639-1,569 people injecting IPEDs.

Conclusions

Secondary distribution of injecting equipment is common among those injecting IPEDs and using NSPs. Whilst not allowing for rotational collection within groups, our analysis suggests

that many of those injecting IPEDs are not in direct contact with NSPs. Innovation approaches for harm reduction interventions are needed.

Word count: 249/250

1. Introduction

Historically, the use of IPEDs, such as anabolic steroids, had predominately been for athletic purposes (Begley et al., 2017). In recent years the range of drugs and prevalence of use for both aesthetic and athletic purposes has increased in England and Wales (Bates et al., 2014; Begley et al., 2017; Home Office, 2016). UK needle and syringe programmes (NSP) often report seeing more people who inject IPEDs than people who inject psychoactive drugs (Bates et al., 2014; McVeigh and Begley, 2017). Increased NSP use by those injecting IPEDs has been reported in other high income countries, with international debate concerning adequate service provision (Iversen et al., 2016).

Appropriate harm reduction interventions are vital to prevent adverse health outcomes, including blood borne viral (BBV) and skin and soft tissue infections (SSTI); 1 in 20 people who inject IPEDs in the UK are hepatitis C antibody positive and 1 in 7 report SSTI symptoms (Hope et al., 2013; Public Health England, July 2015). UK policy is to provide free needles and syringes to all people who inject drugs (PWID) and to support the return of used equipment (NICE, 2014b). The IPED injecting population is receptive to NSPs (NICE, 2014b). However, due to the cyclical nature of IPED use (Chandler and J.McVeigh, 2013), involving planned periods of use and non-use, NSP attendance among people using IPEDs can be less frequent and more seasonal compared to those injecting psychoactive drugs, with IPED injectors often collecting large quantities of equipment (McVeigh et al., 2003).

Qualitative research indicates secondary distribution is occurring, where people who inject IPEDs collect injecting equipment for distribution through their peer networks (McVeigh et al., 2007). UK guidance recommends that services should not discourage secondary distribution, but should encourage its recipients to personally attend NSPs for harm reduction interventions (NICE, 2014b). Among people who inject psychoactive drugs, secondary distribution is evident (Craine et al., 2010; De et al., 2008; Lorvick et al., 2006), with those reporting this as their primary source of clean equipment being younger and less

experienced, and so probably more vulnerable, PWID (Craine et al., 2010). The extent of peer-distribution within IPED networks is unclear, but could be considerable with the recipients potentially being a vulnerable population not reached by current interventions.

We estimate the current extent and nature of the secondary distribution of injecting equipment from English and Welsh NSP by people injecting IPEDs.

2. Methodology

Data from a national cross-sectional survey was used. As part of the Unlinked Anonymous Monitoring (UAM) Survey of PWID a biennial sub-survey of people injecting IPEDs was undertaken. Methodological details have been previously reported (Hope et al., 2013). In summary, people who have ever injected IPEDs were recruited through sentinel collaborating NSPs or outreach services. Participants completed a questionnaire and provided a dried blood spot sample, which was tested for antibodies against HIV, hepatitis B and hepatitis C (Hope et al., 2016; Hope et al., 2017).The survey has multi-site ethical approval from NHS Health Research Authority (MREC/98/2/51).

Data from two survey waves, covering the period 2012-2015 from 29 sentinel services were used. Participants in the second wave who reported participating in the first wave were excluded. Exploratory analysis found missing data in binary variables did not differ in the outcome variable to the non-affirmative responses, so missing data were recoded as such.

Descriptive and comparative analyses were conducted, using Pearson's Chi-squared test, to examine bivariate associations ($p<0.05$) between the outcome variable (collecting equipment for others) with covariates (demographics, injecting practices, intervention uptake and BBV status).

Participants reporting NSP use were asked whether they had collected injecting equipment for others, and how many additional people they routinely collected for, categorised as: 1, 2-9, 10-19 and 20+ others. To assess the extent of onward distribution sensitivity analysis was

conducted, producing a minimum, mid-point and maximum estimate. Bivariate associations were examined for those reporting extensive onward distribution (to ≥20 others) and those who have ever injected IPEDs and psychoactive substances, with covariates previously described. Analyses were conducted in STATA 13.

3. Results

Of the 537 participants, 467 (87%) reported NSP use (Table 1). The demographic characteristics and injecting practises of those using NSP and those not were similar; reporting of redness or swelling at an injection site was, however, higher among the NSP users (Table 1). The median age of those reporting NSP use was 31 years, 98% were men, 1.5% (n=7) were living with HIV, 3.0% (n=14) and 5.1% (n=24) had ever had hepatitis B and hepatitis C respectively.

The IPEDs injected were those commonly reported, with 98% reporting use of anabolic steroids. One-third (34%, n=157) of those using NSPs reported usually collecting injecting equipment for others; the median age at first NSP use for those collecting for others was 26 years and their median time since first NSP use was five years (N=123).

Those collecting injecting equipment for others were more likely to report ever having redness, tenderness and swelling (68% vs 58%, *p*=0.029) and SSTI symptoms (21% vs 13%, *p*=0.029) at an injection site than those not collecting equipment for others (Table 1). Additionally, those reporting secondary distribution were more likely to also inject psychoactive substances (ever: 19% vs 11%, *p*=0.021; recently: 11% vs 4%, *p*=0.011) and report ever sharing a drugs vial (18% vs 9%, *p*=0.002) (Table 1). There was no difference in age.

3.1 Use of psychoactive drugs

Injecting psychoactive drugs in the past year was rare. Overall, 8% (n=36) of participants reported ever injecting heroin, 8% (n=36) cocaine, and 7% (n=32) speed. Participants who

had ever injected IPEDs and who also reported injecting psychoactive drugs during the past year (6%, n=29) were older, (median age 38 vs 30 years, *p*=0.0013) than those only injecting IPEDs (n=438), and more likely to have ever been incarcerated (69% [20/29] vs 22% [96/438], *p*<0.001), vaccinated for hepatitis B (83% [24/29] vs 38% [166/438], *p*<0.001), ever tested for hepatitis C (83% [24/29] vs 36% [157/438], *p*<0.001), reported symptoms of an SSTI (38% [11/29] vs 14% [63/438], *p*=0.001) and re-used injecting equipment (79% [23/29] vs 13% [55/438], *p*<0.001).

3.2 Extent of secondary distribution

Of the 154 who reported the number of other people they collected for, over half (55%) usually collected for one other person, around a quarter (27%) collected for two to nine other people, and 5% collected for ten to nineteen other people. The remaining 13% (4% of the overall sample) reported usually collecting for twenty or more other people (Table 2). Overall, 154 people collected equipment for at least another 639 people injecting IPEDs. A less conservative approach, using a mid-point estimate, suggests collection for an additional 1,000 people injecting IPEDs, and at most an additional 1,569 people were collected for (Table 2).

Considering extensive onward distribution, those vaccinated for hepatitis B were more likely to collect equipment for at least 20 others (22% [15/68] vs 6% [5/86], *p*=0.003) and those ever reporting redness or swelling at an injection site were less likely to collect equipment for at least 20 others (8% [8/106] vs 25% [12/48], *p*=0.003). There were no significant differences with age, gender, BBV infection or the injection of psychoactive drugs.

Among those reporting secondary distribution there was no difference in the number of people they collected for, between those who had and those who had not injected psychoactive drugs in the preceding year (*p*=0.456).

4. Discussion

Our analysis confirms anecdotal reports that secondary distribution of injecting equipment obtained from NSPs by people who inject IPEDs is common, aligning with the single previous UK study (McVeigh et al., 2003). Moreover, our conservative estimate found more people received equipment indirectly through secondary distribution than directly from an NSP and, at most, the population indirectly supplied was around three times the size of our sample.

Although the extent of secondary distribution estimated has a wide range, it suggests that the group of people using IPEDs and not in direct contact with NSPs is probably large. Secondary distribution enables widespread needle delivery, allowing connection with hard to reach users (Kimergård and McVeigh, 2014) and is more effective in reducing BBV transmission than restrictive policies (Kerr et al., 2010). However, those obtaining injecting advice exclusively from peers could mimic their peer's behaviours. If so, our finding that collecting for others was associated with sharing equipment and SSTI symptoms is a concern. The HIV prevalence among those injecting IPEDs and accessing NSPs than in the general UK population is higher (Kirwan et al., 2016). Although prevalence among recipients of onward equipment distribution is unknown, those not in NSP contact may be at greater risk (Public Health England et al., 2016). Our findings, therefore, highlight the importance of alternative platforms and improved approaches for delivering harm reduction interventions to people injecting IPEDs.

One approach would be to utilise the secondary distribution process by engaging those collecting as peer educators (Bates et al., 2014; Marshall et al., 2015). This has previously been shown to be effective among people using psychoactive drugs (Anderson et al., 2003; Broadhead et al., 1998; Craine et al., 2006; Grund et al., 1992; Winyard, 2005), with distributors displaying a health-related altruism to protect others from harm (Bryant and Hopwood, 2009; Snead et al., 2003). Among people using IPEDs, knowledge around IPED

use is sourced primarily from peers, despite their knowledge sometimes being incomplete or inaccurate (Hanley Santos and Coomber, 2017).

Secondly, using social media and online networking for health promotion should be considered (Gold et al., 2012). Currently, people using IPEDs often rely on online forums and websites for information, which can be misleading or inaccurate and thus leading to harms (Bates et al., 2014). As IPEDs and injecting equipment are often sourced online (Andreas et al., 2014; Kimergard and McVeigh, 2014), NSPs could offer online ordering of injecting equipment, incorporating education to improve injecting practices, to engage with this group.

Thirdly, innovative outreach approaches within the IPED community could offer unique access, for delivery of both education and NSPs. The participants who reported extensive secondary distribution may have been collecting for specific gyms. They reported higher uptake of interventions and lower levels of poor injecting practices, indicative of an experienced sub-group with safer behaviours, thus potentially suitable candidates for delivering peer-led gym-based programmes. Such programmes do exist (NICE, 2014a) including informal arrangements with the local NSP (Kimergård and McVeigh, 2014), however obtaining owner consent can be a barrier (Bates et al., 2014).

Lastly, this study highlights the need for NSPs to appropriately address secondary distribution. Services, including pharmacy exchanges, should be willing and able to provide sufficient injecting equipment for additional onward distribution, alongside information in-line with current guidelines (NICE, 2014b).

People who inject IPEDs are mostly a discrete population from those who inject psychoactive drugs; however there is an overlap between these two groups. People injecting both IPEDs and psychoactive drugs were found to be older, report higher uptake of interventions, riskier injecting practices and more often collected equipment for others. A variety of factors may influence this: being older they may have been injecting for longer and

be more established in user networks, or they could be more comfortable attending NSPs due to greater exposure through psychoactive drug use, and therefore attend more often. However, the extent of secondary distribution was similar for people who had only injected IPEDs and those who had also injected psychoactive drugs. Compared to international studies among people who predominantly or exclusively inject psychoactive drugs, the proportion collecting for onward distribution in our study was lower (Bryant and Hopwood, 2009; Newland et al., 2016a; Tyndall et al., 2002), however psychoactive injectors often distribute in smaller networks or to partners (Bryant and Hopwood, 2009). Newland *et al*., found a comparable proportion reporting large-scale distribution (16%) (Newland et al., 2016a) to our study (13%).

There are limitations to our study to consider. Firstly, we are unable to know whether the individuals collecting for multiple others are doing so on a rotational basis within their distribution network. Thus some of those being collected for may also use NSPs (Newland et al., 2016b). Additionally tertiary distribution, where clients may pass equipment onto an individual (potentially a training partner) who again distributes equipment to others, may be occurring and unaccounted for. We also have no information on those who only obtain needles from other sources, such as, through online purchases. Secondly, the data on NSP use relies on self-report and is therefore subject to recall bias. Despite the survey's anonymity, participants may be reluctant to disclose the extent of their redistribution due to concerns over a reduction in provision. Due to using discrete answer categories, our estimates of onward distribution include ambiguity. Finally, as information on the size and nature of this population is currently limited, we are unable to assess the representativeness of the sample and the generalizability of these findings.

5. Conclusion

Secondary distribution of injecting equipment obtained from NSPs is common among those injecting IPEDs. The number of people for whom equipment was collected was greater than the number participating in our study. Our study suggests that many, possibly a majority, of those injecting IPEDs are not in direct contact with NSPs. Those who were also injecting psychoactive drugs more often collected equipment for others. NSPs should target those collecting for others as potential peer educators for cascading harm reduction messages and explore alternative platforms for communicating safer injecting practices among people who inject IPEDs.

Words: 2050/2000

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Table 1: Characteristics of study participants by whether they attended a (NSP) and reported collecting equipment for others

		Attended an NSP; n (%)			Among those attending NSP: Collected equipment for others; n (%)		
		Yes	**No**	*p*	**Yes**	**No**	*p*
Total number of participants		467	70		157	310	
Demographics							
Age	< 25 years	97 (21%)	20 (29%)	*0.334*	30 (19%)	67 (22%)	*0.275*
	25-34 years	203 (44%)	28 (40%)		63 (40%)	140 (45%)	
	>=35 years	167 (36%)	22 (31%)		64 (41%)	103 (33%)	
Gender	Male	457 (98%)	69 (99%)	*0.695*	153 (97%)	304 (98%)	*0.666*
Origin of birth	UK born	447 (96%)	65 (93%)	*0.289*	151 (96%)	296 (95%)	*0.726*
Ever imprisoned	Yes	116 (25%)	14 (20%)	*0.378*	45 (29%)	71 (23%)	*0.174*
Intervention uptake (ever reported)							
Hepatitis B vaccination (at least one dose)	Yes	190 (41%)	23 (33%)	*0.212*	70 (45%)	120 (39%)	*0.222*
Tested for hepatitis C	Yes	181 (39%)	20 (29%)	*0.101*	63 (40%)	118 (38%)	*0.666*
Infection harms and risks (ever)							
Redness, tenderness and swelling at an injection site	Yes	286 (61%)	24 (34%)	*<0.001*	107 (68%)	179 (58%)	*0.029*
Abscess, a sore, or an open wound at an injection site	Yes	74 (16%)	6 (8.6%)	*0.111*	33 (21%)	41 (13%)	*0.029*
Anti-HCV	Positive	24 (5.1%)	1 (1.4%)	*0.169*	12 (7.6%)	12 (3.9%)	*0.081*
Anti-HIV	Positive	7 (1.5%)	0 (0%)	*0.303*	3 (1.9%)	4 (1.3%)	*0.602*
Anti-HBc	Positive	14 (3.0%)	1 (1.4%)	*0.457*	8 (5.1%)	6 (1.9%)	*0.059*
Injecting behaviour							
IPED injected in preceding year	Anabolic steroids	389 (94%)	45 (98%)	*0.262*	130 (93%)	259 (94%)	*0.599*
	Growth hormone	146 (35%)	14 (30%)	*0.521*	56 (40%)	90 (33%)	*0.142*
	Human chorionic gonadotropin	113 (27%)	8 (17%)	*0.15*	33 (24%)	80 (29%)	*0.232*
	Melanotan	54 (13%)	3 (6.5%)	*0.205*	23 (16%)	31 (11%)	*0.14*
Injected psychoactive substances	Yes, ever	65 (14%)	6 (8.6%)	*0.218*	30 (19%)	35 (11%)	*0.021*
	Yes, in preceding year	29 (6.2%)	2 (2.9%)	*0.262*	17 (11%)	12 (3.9%)	*0.011*

Ever re-used own needles	Yes	78 (17%)	6 (8.6%)	*0.081*	33 (21%)	45 (15%)	*0.075*
Ever used other people's needles	Yes	15 (3.2%)	0 (0%)	*0.128*	8 (5.1%)	7 (2.3%)	*0.1*
Ever shared a vial	Yes	56 (12%)	4 (5.7%)	*0.12*	29 (18%)	27 (9%)	*0.002*

Table 2: Extent of onward distribution reported by those who collect injecting equipment for others

Number of users who reported collecting for:	n	%	Estimated onward distribution		
			Low [a]	Mid [b]	High [c]
1 other	85	55%	85	85	85
2-9 others	42	27%	84	210	378
10-19 others	7	4.6%	70	105	133
20+ others	20	13%	400	600	1,000
Total	**154**	100%	**639**	**1,000**	**1,596**

[a] calculated using bottom of the category ranges, i.e. 1, 2, 10, & 20

[b] calculated using mid-point of the category ranges i.e. 1, 5 & 15 with 30 used for 20+ category

[c] calculated using top of the category ranges, i.e. 1, 9 & 19, with 50 is used for the 20+ category